Galileo probe suggests planetary science reappraisal

Preliminary analysis of early data returned by NASA's historic Galileo probe mission into Jupiter's atmosphere has provided a series of startling discoveries for project scientists.

Information on the extent of water and clouds and on the chemical composition of the Jovian atmosphere is particularly revealing. Probe instruments found the entry region of Jupiter to be drier than anticipated, and they did not detect the three-tiered cloud structure that most researchers had postulated. The amount of helium measured was about one-half of what was expected.

These initial findings are encouraging scientists to rethink their theories of Jupiter's formation and the nature of planetary evolution processes, according to probe project scientist Richard Young of Ames.

"The quality of the Galileo probe data exceeds all of our most optimistic predictions," said Wesley Huntress, NASA Associate Administrator for Space Science. "It will allow the scientific community to develop valuable new insights into the formation and evolution of our solar system, and the origins of life within it."

The probe made the most difficult planetary atmospheric entry ever attempted, according to probe manager Marcie Smith of NASA Ames. Entering Jupiter's atmosphere on Dec. 7, 1995, it survived entry speeds of over 106,000 mph, temperatures twice those on the surface of the Sun and deceleration forces up to 230 times the strength of gravity on Earth. It relayed data obtained during its 57-minute descent mission back to the Galileo orbiter more than 130,000 miles overhead for storage and transmission to Earth. The orbiter is now embarking on a two-year mission to study Jupiter and its moons.

"The probe detected extremely strong winds and very intense turbulence during its descent through Jupiter's thick atmosphere. This provides evidence that the energy source driving much of Jupiter's distinctive circulation phenomena is probably heat escaping from the deep interior of the planet," Young said. "The probe also discovered an intense new radiation belt approximately 31,000 miles above Jupiter's cloud tops, and a veritable absence of lightning," he noted.

The composition of Jupiter's atmosphere offered some surprises, according to project scientists. It contains significantly lower than expected levels of helium, neon, and certain heavy elements, such as carbon, oxygen and sulfur.

What are the implications of these findings? Most scientists believe that Jupiter has a bulk composition similar to that of the gas and dust cloud of the primitive solar nebula from which the planets and our Sun were formed, with added heavy elements from comets and meteorites. The probe's measurements may necessitate a re-evaluation of existing views of how Jupiter evolved from the solar nebula.

Irony strikes at Ellington

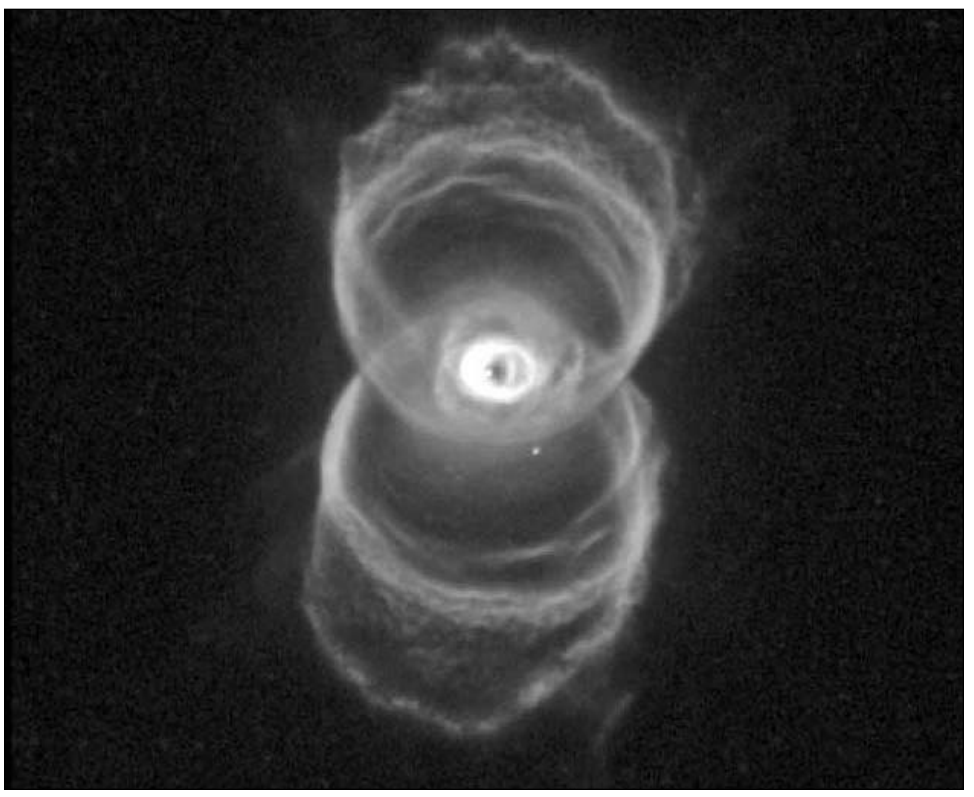
When President Bill Clinton stepped up to the microphone at Ellington Field on Saturday, he probably didn't notice that some of the same equipment used by the White House was being used by NASA.

But the JSC Staging and Presentation personnel who set up the public address system were stricken by the irony.

That group of Media Services Corp. employees are often faced with difficulties because of the open air landing strip and blowing wind. Several months ago, team member Patrick Quinn suggested tracking down wind screens like those used by the president. He called local stores to no avail, and then at the suggestion of team leader Bill Taylor contacted the White House Communications Office.

Turns out those screens, nicknamed "goose eggs" because of size and shape, are specially made for the President. The White House gave the JSC team information on the vendor and model.

STS-72 was the first crew to use the new system—and who should show up, but the President himself.



A new photo from the Hubble Space Telescope of a young planetary nebula about 8,000 light-years away shows the dramactic death of a Sun-like star. This is one of six new images from the Hubble Space Telescope that are now available via the World Wide Web at URL: http://www.hq.nasa.gov/office/pao/NewsRoom/today.html

Ames director to take top Moffett Field post

Ken Munechika, director of Ames Research Center, has been named to a newly-created position as director of the Moffett Federal Airfield and Henry McDonald will take over the reins of Ames on Mar. 4, NASA Administrator Daniel S. Goldin announced last week.

"This move reflects the increasing importance of California's Moffett Field to its current and future occupants and to the Silicon Valley," Goldin said. "Dr. McDonald brings to Ames strong research experience in information systems applications, computational physics and aerodynamics, combined with technical and managerial skills that will reinforce NASA's commitment to aeronautical and space research."

Since July, 1994 when Naval Air Station Moffett Field was disestablished, NASA has served as the host agency currently occupied by more than 10,000 active duty military, civilian and military reserve personnel.

Munechika will be responsible for seeing that the resident agencies and the Ames Research Center are provided with all the services normally associated with a federal airfield, including control tower operations, crash, fire and rescue operations and maintenance.

"Information technologies and their applications are key building blocks for all future aeronautics and space endeavors," Goldin said. "As one of the world's most eminent research facilities, Ames has been selected to become NASA's Center of Excellence for information technology. Under Dr. McDonald's leadership Ames will blaze a new broad trail in information systems technology and continue worldwide leadership in airspace operations and astrobiology."

Russian spacecraft lands at Space Center Houston

By Karen Schmidt

A Russian Vostok capsule—the same type used to launch the first man into space—is one of many featured attractions and events at Space Center Houston in 1996 and volunteers can help bring this space attraction and others closer to the public.

The capsule, used as a military mapping satellite, weighs two and one half tons and gives visitors a close-up view of Russian space technology in the 1960s. Vostok, which means east in Russian, is the same type of capsule that launched Yuri Gagarin into space on April 12, 1961, just three month prior to American Alan Shepard's Mercury flight on May 5.

The Vostok capsules were used exclusively by the Russians until 1963. Cosmonauts ejected from their capsules and parachuted to Earth instead of returning to Earth in their capsules. Vostok 3 and 4 were the first spacecraft to rendezvous in space in 1962 approaching within three miles of each other. The last Vostok capsule carried the first women into space, Valentina Tereshkova, on June 16, 1963. The Vostok capsule will remain on display at SCH until March 9.

One new feature for visitors to enjoy is "Close Encounters." Every Tuesday morning at 10:30 a.m. January - May , JSC scientists and engineers will give special presentations and bring visitors closer space in the Mission Status Center. Visitors also can learn more about how lasers and holograms are being used in today's industry, medicine, space travel, communications and entertainment in the "Lasers and Holograms: Discovering the Splendid Light," display.

Other ongoing activities include "A Vision of the Future: The Art of Robert McCall." McCall's murals, paintings, illustrations and crew patch designs will be on display until March. "Cosmic Collisions" is a multimedia exhibition that explores the mysteries of Antarctic meteorites and impact craters, provides clues to the extinction of dinosaurs and highlights the cosmic comet crash of Shoemaker-Levy 9 with Jupiter.

IMAX feature films currently playing at SCH are "To Be An Astronaut," which explores the personal experiences of astronauts from classroom lectures to on-orbit operations. "Hail Columbia" details the beginning of the space shuttle program and pays tribute to the American space program. "The Dream is Alive" includes footage taken by 14 different astronauts in 1984 and is a production of launches, a satellite capture and repair, space walks, landings and a look at life in space.

Education also is a primary focus for the '96 season. SCH's Educational Programs Department will host a Discovery Day on Feb. 15 where students with physical, auditory and mental challenges can participate in the "hands-on" experience at SCH.

"Careers in Space Week" slated for Feb. 19-23, will feature special speakers who will discuss with student groups and other guests what it takes to be part of the manned space program.

In a two-day event sponsored by the Boeing Co. and Southwest Airlines in cooperation with JSC, SCH will host an International Space Station Educator's Conference Feb. 9-10. This second annual conference is designed to bring the space station closer to teachers though interactive workshops and demonstrations.

February also has been designated Boy Scout month at SCH and includes special discounts for troops to experience space first hand.

Spring Break Camps also are on the agenda for '96. Day Camps will feature Rocket "Engine"-uity, Shuttle Orientation, Lego Exploration and If It Suits You activities for children of all ages. This year the program has expanded in conjunction with the University of Houston-Clear Lake to conduct camps at local libraries. In addition, special programs have been created for children ages five to seven. Day camps will be held from March 11-15 and March 18-22.

JSC employees are encouraged to share their experiences and expertise with guests at SCH. Volunteers are classified as either "on-stage" as in the case of greeters or mission briefers, or "backstage" for office workers or wardrobe.

"This is definitely a fun way to give our guests a very personal experience during their visit," said Amanda Tutt, human resources administrator at Space Center Houston. "JSC's employees have a unique perspective on our human space flight program and this program will give them a chance to share their own enthusiasm for NASA's achievements with our visitors from all over the world."

Volunteers are asked to devote one four-hour shift per week and an enrollment fee of $20 to cover the cost of a volunteer shirt and training materials. Volunteers receive the added benefit of complimentary tickets to SCH as well as other gifts. Volunteer orientation is scheduled for mid-February. JSC volunteers will be a welcome addition for this year's special events. For more information on these attractions or to volunteer call SCH at 244-2105.

Rookies in awe over view

(Continued from Page 1)

flyer, this was a real exciting mission. There were a lot of things I had to learn about, living in space," Jett said. "Brian and Leroy did a great job of keeping all four rookies in line." Jett said things worked so well because the training team kept it simple.

Mission Specialist Leroy Chiao echoed Jett's sentiments. "We had a great mission, a great NASA team and a great bird," Chiao said. "The highlight for me was the two space walks and I want to say a big thank you for everyone that supported us."

Mission Specialist Winston Scott reflected on his first experience at space flight. "Every space flyer, especially every first time space flyer, thinks his or her mission is special, I am no exception to that," Scott said. "The thing that is really special on this mission is the team work."

Mission Specialist Koichi Wakata greeted his friends and colleges. "I really enjoyed working with everybody, I learned a lot," Wakata said. "The success of this mission would not have been possible without the efforts of Mission Control, people from the SFU project in Japan and the support of the Japanese Space Agency."

Mission Specialist Dan Barry was overwhelmed at the view from space and reflected on a special moment. "The views and the colors are beyond all expectations," Barry said.

Space News Roundup

The **Roundup** is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

The Roundup office is located in Bldg. 2, Rm. 181. The mail code is AP2. The main Roundup telephone number is x38648 and the fax number is x45165.

Editor ……Kelly Humphries
Associate Editor ……Karen Schmidt
Contributing Editor ....James Whittington

STS-80 to feature space walks

(Continued from Page 1)

creating a super vacuum in its wake in which to grow thin film wafers for use in semiconductors and other high-tech electrical components. The ORFEUS instruments are mounted on the reusable Shuttle Pallet Satellite and will study the origin and makeup of stars. Astronauts Jernigan and Jones will conduct a space walk during the mission to continue the flight test and evaluation of hardware for future space walks or extravehicular activity.

Columbia's next flight after STS-80 will be a 16-day mission to conduct multiple experiments in materials science research in a pressurized laboratory mounted in the payload bay. As payload commander, Voss will oversee the long-range planning and organization necessary for that mission.

Cockrell, 45, will be making his third flight on the shuttle. Rominger, 39, completed his first shuttle flight in October 1995 aboard *Columbia* on the STS-73 mission. Jernigan, 36, has flown three times on the shuttle: Jones, 40, flew on two shuttle missions aboard *Endeavour* in April and October, 1994. Musgrave, 60, has flown on five shuttle missions. Voss, 39, flew on STS-57 aboard *Endeavour* in June, 1993 and STS-63 aboard *Discovery* in February, 1995. Thomas, 40, will be making his third flight aboard the shuttle.

NASA-JSC